

Second Draft Marsland Expansion Area License Conditions

Draft Standard License Conditions	Crow Butte Resources Response
<p>Authorized place of use shall be 1.) The licensee's Crow Butte Project uranium recovery and processing facilities, which is the primary processing facility located in Dawes County, Nebraska. The licensee shall conduct operations within the license boundaries shown in Figure 1.7-2 of the license application-dated November 27, 2007 (Agencywide Documents Access and Management System (ADAMS) package ML073480264). 2) The Marsland Expansion Area (MEA) located in Dawes County, Nebraska. The licensee shall conduct operations within the license boundaries shown in Figure 1.7-5 of the license application dated November, 12, 2015 (ADAMS package ML15328A422).</p>	<p>NRC – staff updated administrative license condition to include Marsland Expansion Area as an authorized place of use.</p> <p>CBR 1/9/18- Accepted</p>
<p>The licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application or amendments, or both, for each facility, which are hereby incorporated by reference. These submittals include the following:</p> <p>Crow Butte Project dated November 27, 2007 (ADAMS package ML073480264), as supplemented by submittals dated August 28, 2008 (ML082410902), May 12, 2009 (ML091470116), July 13, 2009 (ML091980473), September 17, 2010 (ML102640195), September 28, 2010 (ML102740030), February 8, 2012 (ML120450518), April 19, 2012 (ML121170487), August 16, 2012 (ML12235A355), August 30, 2012 (ML12250A421), October 4, 2012 (ML12285A075), March 4, 2014 (ML14064A143), May 15, 2014 (ML14135A414), August 13, 2014 (ML14247A155), April 2, 2015 (ML15097A140), March 20, 2017 (ML17080A486), and the commitments submitted for verification listed below.</p> <p>Marsland Expansion Area dated November 12, 2015 (ADAMS package ML15328A422), which is supplemented by submittals dated May 20, 2016 (ML16155A283), June 27, 2017 (ML17193A311), August 31, 2017 (ML17251A260), October 26, 2017 (ML17300A227), October 31, 2017 (ML17313A803), November 8, 2017 (ML17319A211), and any commitments submitted for verification specified in this license.</p> <p>Verification submittals:</p> <p><u>Airborne Effluent and Environmental Monitoring Program -</u></p> <p>January 2, 2015 (ML15009A031), June 30, 2015 (ML15217A332), September 21, 2015 (ML15310A373), November 24, 2015 (ML15335A040) and December 4, 2015 (ML15341A030)</p> <p><u>Operational Soil Sampling Program -</u></p> <p>May 11, 2015 (ML15146A026)</p> <p><u>Wellfield Decommissioning Plan, Additional Details -</u></p> <p>December 19, 2014 (ML14364A228), September 14, 2015 (ML15266A187), September 25, 2015 (ML15279A075)</p>	<p>NRC – staff updated administrative license condition to include Marsland Expansion Area commitments, representations, and statements</p> <p>CBR 1/9/18-Accepted</p>

<p>The approved application, supplements, and information submitted for verification are hereby incorporated by reference, except where superseded by license conditions below.</p> <p>Whenever the word "will", "shall", or "would" is used in the above referenced documents, it shall denote a requirement.</p> <p>[Applicable amendment: 2]</p>	
<p>The licensee shall identify (1) the location, screen depth, and estimated pumping rate of any new permitted groundwater wells, and (2) any permitted change to the use of an existing groundwater well, for all groundwater wells within the MEA license area or within two kilometers of any proposed MEA production area monitoring well ring. The licensee shall evaluate the impact of ISR operations on groundwater quality for all users in terms of groundwater quality, wells within these areas and recommend any additional monitoring or other measures to protect groundwater users. The evaluation These evaluations shall be submitted semiannually as part of the licensee's semiannual reporting to the NRC specified under license condition 11.1 (D) effluent and environmental monitoring program report.</p>	<p>CBR 1/9/18-Accepted</p> <p>NRC – For clarity, staff made some minor revisions.</p> <p>CBR 1/26/18-Accepted</p>
<p>The licensee shall dispose of solid byproduct material from the Crow Butte Project facility and the Marsland Expansion Area MEA at a facility that is authorized by NRC or an NRC Agreement State to receive byproduct material. The A copy of the licensee's approved solid byproduct material disposal agreement must be maintained on site at both the Crow Butte Project facility and the MEA. If the agreement expires or is terminated, the licensee shall notify the NRC within seven working days after the date of expiration or termination, and shall submit a new agreement to the NRC within 90 days after expiration or termination. If the licensee does not submit a new agreement within 90 days, or the licensee will be prohibited from further lixiviant injection until the licensee submits the new agreement to the NRC.</p>	<p>NRC – staff revised the standard license condition to include the North Trend Expansion Area in the solid byproduct material disposal requirement and to provide clarity.</p> <p>CBR 1/9/18-Accepted</p> <p>NRC – For clarity, staff made some minor revisions.</p> <p>CBR 1/26/18-Accepted</p>
<p><u>Establishment of Background Water Quality.</u> Prior to injection of lixiviant for each mine unit, the licensee shall establish background ground water quality data for the ore zone and overlying aquifers. The background water quality will be used to define the background ground water protection standards required to be met in 10 CFR 40, Appendix A, Criterion 5B(5), for the ore zone aquifer and surrounding aquifers. Water quality sampling shall provide representative background ground water quality data and restoration criteria as described in Sections 5.8.8 and 6.1.3 of the approved license application.</p> <p>The data shall consist, at a minimum, of the following sampling and analyses:</p> <p>A. Four samples shall be collected from production and injection wells at a minimum density of one production or injection well per four acres. These samples shall be collected at least 14 days apart.</p> <p>B. Four samples shall be collected from each designated monitoring well at a minimum density of: 1) one upper aquifer monitoring well per five acres of mine unit area, and 2) all perimeter monitoring wells. These samples shall be collected at least 14 days apart. The results of these analyses shall constitute the baseline for each designated well.</p> <p>C. The samples shall be analyzed for ammonia, arsenic, barium, cadmium, calcium, chloride, copper, fluoride, iron, lead, magnesium, manganese,</p>	<p>NRC – Staff modified the renewal standard license condition with the requirement to measure of background alpha in accordance with 10 CFR Part 40, Appendix A, Criteria 5 and 13. Also Staff modified the license condition (part E) for mine unit hydrologic test packages (wellfield test packages) and incorporated it into a MEA-specific license condition</p> <p>CBR 1/9/18-Accepted</p>

mercury, molybdenum, nickel, nitrate, pH, potassium, radium-226, selenium, sodium, sulfate, total carbonate, total dissolved solids, uranium, vanadium, zinc, and gross alpha.	
D. Prior to operation of a mine unit, representative background concentrations shall be established on a parameter-by-parameter basis using either the mine unit or well-specific mean value.	
Flow rates on each injection and recovery well, and manifold pressures on the entire system, shall be monitored and recorded daily. During well field operations, injection pressures shall not exceed 100 pounds per square inch at the injection well heads.	CBR 1/9/18-Accepted

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Draft Marsland Facility Specific License Conditions	Crow Butte Resources Response
Prior to the commencement of the construction and operation of related to NRC-licensed activities at the MEA, the licensee shall resume monitoring to collect additional meteorological data on a continuous basis at a data recovery rate of at least 90 percent until the licensee submits sufficient data and analysis to the NRC, and the NRC staff has provided written verification that the data are representative of the long-term conditions at the Marsland Expansion Area -MEA. The data collected shall include, at a minimum, wind speed, wind direction, and an annual wind rose. The When the licensee believes it has representative data, the licensee shall submit the data, a summary of the stability classification, and an analysis demonstrating that the data are representative of long-term conditions at the MEA.	CBR 1/9/18-Accepted NRC – For clarity, staff made some minor revisions. CBR 1/26/18-Accepted
The applicant shall minimize potential damage to infrastructure from peak flows by avoiding well installation within 100-year flood plains and areas of moderate to high risk of erosion and concentrated water flow during storm runoff. If the installation of wells in such locations cannot be avoided, adequate wellhead protection will be required to protect the wells during flood conditions. Prior to such installation, a description of wellhead protection measures that will be used to protect the wells during flood conditions shall be provided submitted to the NRC for review and written verification.	CBR 1/9/18-Accepted NRC – For clarity, staff made a minor revision. CBR 1/26/18-Accepted
Prior to site the commencement of construction related to NRC-licensed activities at the MEA, the licensee shall provide the results of analysis of water samples from the Niobrara River collected quarterly at established sampling locations N-1 and N-2 for a period of one year and analyzed for the list of non-radiological constituents in Sections A, B and C of Table 2.7.3-1 of NUREG-1569. Analytical results for all samples shall be submitted to the NRC for review and written verification. Before implementing this sampling program, the licensee may submit to the NRC, for review and written approval, an alternate list of water quality non-radiological constituents is tailored to the MEA site, along with appropriate technical justification shall be submitted to the NRC for review and written approval before the sampling is implemented.	CBR 1/9/18-Accepted NRC – For clarity, staff made some minor revisions. CBR 1/26/18-Accepted

<p>At least 90 days prior to the commencement of construction related to NRC-licensed activities at the MEA, the licensee shall collect and submit the results of preoperational soil and crop samples as described in the licensee’s submittal dated June 27, 2017 (ML17193A311) to the NRC staff for review and written verification. TheFollowing NRC verification, the results of the preoperational soil samples shall be added to Appendix BB of the Marsland Technical Report, and the results of the preoperational crop samples shall be added to Appendix Q of the Marsland Technical Report, as described in the licensee’s submittal dated June 27, 2017 (ML17193A311).</p>	<p>CBR 1/9/18-These samples have been collected and the site is awaiting results from the lab.</p> <p>NRC – Ok, thank you for the status update. For clarity, staff made some minor revisions.</p> <p>CBR 1/26/18-Accepted</p>
<p>The licensee shall not construct a wellfield using either a staggered line drive or direct containing line drive design. (i.e., one line or multiple parallel lines of production wells with a line of injections wells located on either side of and parallel to each line of production wells).</p>	<p>CBR 1/9/18-Please define the term “line drives” in the language of the license condition.</p> <p>NRC – staff defined the term as requested</p> <p>CBR 1/26/18-Accepted</p>
<p>The MEA satellite building throughput shall not exceed a maximum flow rate of 5,400 gallons per minute, excluding restoration flow.</p>	<p>CBR 1/9/18-Accepted</p>
<p>Prior to commencing injection of lixiviant in the commencement of ISR operationsfirst wellfield at the MEA, the licensee willshall obtain and submit to the NRC a copy of the NDEQ Underground Injection Control (UIC) permit authorizing construction of a minimum of two UIC deep disposal wells. The licensee shall ensure that the deep disposal wells have enough combined capacity to handle the disposal of the total liquid effluent generation at the MEA from both production and restoration phases of operation. Prior to constructing a land application system or surge/solar evaporation ponds for liquid waste disposal at the MEA, the licensee must request and obtain a license amendment allowing the construction and use of such a system at the MEA.</p>	<p>CBR 1/9/18-Accepted</p> <p>NRC – For clarity, staff made some minor revisions.</p> <p>CBR 1/26/18-Accepted</p>
<p>At least 60 days prior to the NRC staff’s preoperational inspection for the MEA, the licensee shall submit a figure showing the air sampling locations of tank vents and general ventilation discharge points of the MEA satellite building to the NRC headquarters staff for review and written verification.</p>	<p>CBR 1/9/18-Accepted</p> <p>NRC – For clarity, staff made a couple of minor revisions.</p> <p>CBR 1/26/18-Accepted</p>
<p>At least 90 days prior to the planned start date of lixiviant injection in a new MEA wellfield, the licensee shall submit a wellfield package to the NRC. For mine units MU 1 through MU 5 and MU A through MU C (TR Figure 1.7 5, CBR, 2015), the licensee for review and written verification. The Licensee must receive written NRC verification of the wellfield package prior to injecting lixiviant into the mine unit. For mine units MU D through MU F, the licensee must receive written NRC approval of the wellfield package prior to injecting lixiviant into the mine unit.</p> <p>As part of developing its wellfield packages for new mine units at the MEA, the applicant shall perform an aquifer pumping test for each new mine unit. For mine units MU-D through MU-F, the licensee shall submit its plan for conducting the aquifer pumping test for NRC review and approvalwritten verification at least 60 days prior to the planned date for performing the aquifer pumping test. For all mine units, each wellfield package, the licensee shall include (1) the information identified in Section 3.1.3 (p. 3-12) of the 2016 Response to Open Issues - Marsland Expansion Area Technical Report (ADAMS Accession No.</p>	<p>CBR 1/9/18-Accepted</p> <p>NRC –Staff made some revisions resulting from staff’s review of the MEA application.</p> <p>CBR 1/26/18-Accepted</p>

<p>ML16155A283), and (2) a discussion of the aquifer pumping test results and conclusions incorporating identified boundary conditions, fault-related flow effects, drawdown maps (relative to mean sea level), drawdown match curves, potentiometric surface maps (relative to mean sea level), water level graphs, and, when appropriate, directional transmissivity data and graphs, and other relevant data and data illustrations.</p>	
<p>To ensure that the Basal Chadron Sandstone aquifer remains saturated during operations and restoration at the MEA, the licensee will monitor water levels semi-annually in dedicated, existing MEA monitoring wells 8 and 9 and in two additional monitoring wells to be installed in the Basal Chadron Sandstone aquifer. The two additional wells shall be located in NW ¼ of SW ¼ of Section 26, T30N, R51W and NW ¼ of SE ¼ of Section 26, T30N, R51W. At any time from the start of ISR operations at the MEA, if the overall average water level drawdown rate in any one of the four monitoring wells exceeds 10 ft/yr, or if the water level in any one of the four monitoring wells drops below 3539.0 ft above mean sea level, the licensee shall develop a corrective action plan addressing how compliance with these limits will be restored, and shall submit the plan to the NRC within 45 days for review and written approval. In addition, each year, as part of its semi-annual effluent and environmental monitoring program report that covers the third and fourth calendar quarters, the licensee shall submit annual reports to the NRC documenting the semi-annual water level data in the four monitoring wells and presenting, present calculations of cumulative total water level drawdown and average drawdown rates for the complete period of record. As part of the annual report, the licensee shall also, and provide a written assessment of the drawdown in the Basal Chadron Sandstone aquifer at the MEA.</p>	<p>CBR 1/9/18-We do not submit an annual report. Please revise the language of the license condition to require that the water level data and the calculations of cumulative total water level drawdown as well as the written assessment of the drawdown in the Basal Chadron Sandstone aquifer at the MEA are included in the Q3/Q4 semiannual report.</p> <p>NRC – staff revised the language of the license condition as requested.</p> <p>CBR 1/26/18-Accepted</p>
<p>At least 90 days prior to commencement of construction associated with NRC-licensed activities at the MEA, the applicant shall provide to the NRC for review and written approval an updated cost estimate that covers decommissioning and reclamation costs for the first MEA wellfield, along with a copy of the financial surety arrangement that covers those costs and that meets the requirements of Criterion 9 in 10 CFR Part 40, Appendix A. Updated cost estimates and financial assurance arrangements to cover the decommissioning and reclamation costs for subsequent wellfields at the MEA will be submitted in accordance with the update requirements in LC 9.5.</p>	<p>NRC – Staff added this MEA specific license condition.</p> <p>CBR 1/26/18-Accepted</p>